

THE VARIATIONS OF DELISSEA SUBCORDATA GAUD.
LOBELIACEAE
HAWAIIAN PLANT STUDIES 62

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Delissea subcordata was one of the four original species when the genus was described by Gaudichaud. It occurs on both mountain ranges of Oahu, in three separate areas, and also on Kauai. The plants of each area have a characteristic habit, and look different from those of the other regions. The flowers and fruits are homogeneous, but divergent characters are evident in the foliage. These plants of different localities are best recognized as varieties.

Key to Varieties of *Delissea subcordata*

- A. Blades broadly obtuse, elliptic ovate, crenate, the base rounded; corolla 60 mm long.
var. obtusifolia.
- A. Blades acute to subacuminate,
B. Blades crenate (or serrulate), ovate lanceolate, the base subtruncate, then shortly cuneate; corollas 57-60 mm long.
var. waikaneensis.
- B. Blades denticulate or serrate,
C. Blades coarsely bidenticulate, lanceolate to ovate, often with several short lobes near the base; corollas 45-50 mm long.
var. subcordata.
- C. Not so,
D. Blades biserrate, lanceolate, the base shortly cuneate; corollas 55 mm long.
var. waiialaeensis.
- D. Blades coarsely unequally curved denticulate, the base rounded to subcordate.
var. kauaiensis.

Delissea subcordata Gaud., var. *subcordata*. Bot. Voy. Uranie 457, 1829; Atlas pl. 77, 1826-1830; Hillebrand, Fl. Haw. Is. 249, 1888; Rock, B. P. Bishop Mus., Mem. 7(2): 345, pl. 195, 1919; Wimmer in Engler's Pflanzenreich

IV, 276b: 42-43, 1956; Degener, Fl. Haw. 339: 12/28/60.

Holotype: Iles Sandwich, C. Gaudichaud (P). The single leaf preserved is shown in a photo (BISH).

Oahu, Waianae Mts.: from the windward slopes of Mt. Kaala, Degener 20,633; also Forbes 1,813.0; Inouye 76; Mann & Brigham 573; Montgomery et al.; Nagata & Obata 1,117; Russ; and to the south: Palakoa Valley, W. A. Bryan; Puu Kanehoa, Stone 3,455; Kaluaa Gulch, Obata & Palmer 325; Puu Kaa, St. John 21,531; Huliwai, Russ.

Original Diagnosis: "ramosa, foliis ovatis, argute dentatis, glabris; calycibus quinque-dentatis."

Var. *kauaiensis* var. nov.

Diagnosis Holotypi: Foliis 13-18 cm longis 9-11 cm latis ovatis ad elliptici-ovatis subacuminatis basi rotundata ad subcordata interdum in tertia infera cum 1-2 lobis lanceolatis marginibus grosse inaequaliter curvati-denticulatis.

Diagnosis of Holotype: Blades 13-18 cm long, 9-11 cm wide, ovate to elliptic ovate, sub-acuminate, the base rounded to subcordate, sometimes with 1-2 lanceolate lobes in the lower 1/3, the margin coarsely unequally curved denticulate; petioles 8-16.5 cm long.

Holotypus: Sandwich (=Hawaiian) Islands, Kauai Island, H. Mann & W. T. Brigham (BISH).

Var. *obtusifolia* Wawra, Flora 31: 7, 1873; Hillebrand, Fl. Haw. Is. 249, 1888; Rock, Bishop Mus., Mem. 7(2): 349, 1919; Wimmer in Engler, Pflanzenreich IV, 276b: 43, 1956; Degener, Fl. Haw. 339: 12/28/60.

Original Diagnosis: "foliis quam praecedenti multo amplioribus, rotundatis."

Expanded Description: Blades 14-22.5 cm long, 9.5-12 cm wide, elliptic ovate, obtuse, the base rounded, the margin crenate; petioles 7-12.5 cm long; corollas 60 mm long.

Holotype: Hawaiian Islands, "Oahu, Halemanū, ex hb. Hillebrand." (W).

Specimens Examined: Hawaiian Islands, Oahu Island, Koolau Mts., Waikane, Waikane-Schofield Trail, Oct. 16, 1932, N. H. Krauss.

Var. waiialaeensis var. nov.

Diagnosis Holotypi: Laminis 16-24 cm longis 7-9.5 cm latis lanceolatis acutis ad subacuminatis basi breve cuneata biserratis.

Diagnosis of Holotype: Blades 16-24 cm long, 7-9.5 cm wide, lanceolate, acute to subacuminate, the base shortly cuneate, biserrate; petioles 8-18 cm long; corollas 55-60 mm long.

Holotypus: Hawaiian Islands, Oahu Island, Waialae Valley, Oct. 15, 1914, C. N. Forbes 1,945.O. (BISH).

Specimens Examined: Hawaiian Islands, Oahu Island, Wailupe Valley, right fork, 12 Jan. 1920, D. W. Garber & Forbes 173; Wailupe, W. Hillebrand & J. M. Lydgate; Tantalus, G. C. Munro 10; Pauoa Valley, June 1908, J. F. Rock 4,859a; Niu Valley, Aug. 22, 1909, Rock 4,859.

Var. waikaneensis var. nov.

Diagnosis Holotypi: Laminis 14-27 cm longis 7.5-11 cm latis ovati-lanceolatis acutis ad subacuminatis basi subtruncata tum breve cuneata crenatis (vel serrulatis).

Diagnosis of Holotype: Blades 14-27 cm long, 7.5-11 cm wide, ovate lanceolate, acute to subacuminate, the base subtruncate, then shortly cuneate, crenate (or serrulate); petioles 6-16 cm long; corollas 57-60 cm long.

Holotypus: Hawaiian Islands, Oahu Island, Koolau Range, Waikane, May 6, 1934, H. Morley (BISH).

Specimens Examined: Hawaiian Islands, Oahu Island, Waikane Valley, near stream, 1,000 ft alt., 4/17/32, E. P. Hume 540; Waikane, wooded valley, 400 ft alt., June 21, 1931, H. St. John 11,108; Waikane, Waikane-Schofield trail, wet woods, 1,000 ft alt., Oct. 16, 1932, St. John 12,118; Waikane Valley, by ditch trail in small ravine, 400 ft alt., May 10, 1931, W. B. Storey 70.

The specimens cited are all in (Bish), unless otherwise indicated.